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VI. Cuculus Lævis cæruleo flavescens, cui in supremo Capite Bronchiarum Opercula.

O R,  
*The Yellow Gurnard.*

By Edward Tyson, M. D. Fellow of the Coll. of Physicians and R. S.

**I**F we may justly inter on Identity of *Species* in Fishes, from the likeness of their Fins, we have then some ground to conclude, that this Fish (I am giving an account of, and which has not hitherto been described by any, as I know of) ought to be referred to the *Gurnard* kind. Not but that in many particulars, and those very remarkable too, it differ'd from it. However, not finding any other *Species* it agreed with better; and the Fishmonger that sent it to the R. S. not knowing any Name 'twas call'd by where taken, which was about *Hastings* in *Sussex*; I shall take Liberty to call it the *Yellow Gurnard*: and that I had some Colour of reason for doing this will appear, when I have compared this Fish with the *Red Gnrnard*, and shewn wherein they agreed or differ'd.

And first of all, as to the general Shape of their Bodies I found an agreement enough. In both, the Head was the biggest part; the Body thence gradually still lessening and growing taperer, as it approached the Tail, where 'twas very small in both. The *Yellow Gurnard* measured eleven inches in length, whereof the Tail was two. The Girth of the Head was four inches and a half.

The Fins, as to number and situation, or placing on the Body, were exactly the same in both ; I shall therefore omit their description, and only take notice wherein they differ'd in other Circumstances. As in the fore Fin on the Back of the *Yellow Gurnard*, there were four or five *Radij* or Spines ; whereof the first was six inches long ; the next about two ; the others shorter : In the *Red Gurnard* in this Fin were six strong bony Spines, sharp-pointed ; whereof the second from the Head being the longest, was only a little above an inch, and the rest not much shorter. Note, the *Red Gurnard* I had to compare with, was but small, and something lesser than the *Yellow* one.

In the hinder Fin of the Back of the *Yellow Gurnard* there were nine *Radij* ; in the *Red Gurnard* fourteen ; in both, the *Radij* near the Tail were the longest ; those in the *Yellow Gurnard* being two inches and a half long.

The Membrane that joyned these *Radij* of the Back Fins, as to Colour differ'd very much in these Fishes. For in both the Back Fins of the *Red Gurnard* this Membrane was all of a White transparent Colour. In the fore Fin of the *Yellow Gurnard*, the Membrane was yellowish with blue spots, and some edged with black, and the Membrane of the hinder Fin was of a faint bluish Colour, with four Yellow lists or streaks about a line broad, running the whole length, as in the Figure.

The *Pinnæ Bronchiales* (whereof there were two of each side, and their situation in both, the same, the uppermost being inserted Perpendicular, the lowermost Horizontal to the Body) differ'd likewise in Colour. For in the *Yellow Gurnard* the uppermost Fins were white ; the lowermost of a dark blackish Colour, with several beautiful long spots of an Azure blue. In the *Red Gurnard*, the uppermost Fins were of a dark reddish Colour ; the lowermost white : But here between these two Fins I

observed three naked *Cartilaginous Radij*, which are not in the *Yellow Gurnard*, and are well Expressed in *Salvia-nus's* Figure of the *Red Gurnard*.

The Fin on the Belly was plac'd exactly alike in both. The *Yellow Gurnard* here had nine *Radij*, and its Membrane of a darkish blue Colour. The *Red Gurnard* had 17 or 18 *Radij* here, and its Membrane transparent white. The Tail in both was much the same.

Over the *Anus* in the *Yellow Gurnard* was a slender pendulous body, which was not observed in the *Red Gurnard*.

The Colour of the Body of these two Fishes differing likewise very much ; and I know not, but that it may be a Property in this Species to vary in Colours, more than other Fishes do. The Belly of the *Red Gurnard* was of a Silver Colour, and some part of the Sides near the Belly : the rest, and the Back and the Head, were of a reddish Colour. In the Head there were some small whitish Spots. The Belly of the *Yellow Gurnard* was white, but under the lower Jaw was black. The Sides and Back were yellowish ; but between the Belly and Sides there ran a blue streak or list about a line and a half broad from the Head to the Tail ; and a little higher on the Sides, there was a Chain of blue Spots the length of the Fish ; for on the sides of the Head I observed these blue Spots, only from the Eyes to the end of the *Rostrum* the Spots were of a deep yellow Colour. There being therefore so much of blue and yellow over the greatest part of the Body of this Fish, I have given it the Epithet of *Ceruleo-flavescens* ; for, where the ground is blue the Spots are yellow, and where yellow the Spots are blue.

Tho, hitherto there seems a tolerable agreement between these two Fishes, yet in the Remarks I shall now add, the disagreement will appear greater. For the *Yellow Gurnard* was without Scales, I therefore call it

*Lewis.*

*Levis.* The Red Gurnard had not only Scales on the Back, but likewise a Ridge of spiny Scales all along the Sides ; as also of each side the Back Fins were placed the like spiny Ridges or Scales. But the Belly seemed almost smooth, and had but few Scales, and those very fine ; and indeed those on the Back were much smaller than those in most other Fishes. If Mr Leewenbeck's Observation be true, that even the *Anguillous* Kind are Scaly, then the difference will not be so great, the one having *Membranulous* Scales, the other *Bony*. Or it may be our subject is an *intermediate Species* between the *Gurnard* Kind and some other.

And this I am the more apt to believe, because, tho it has Gills of each side, yet it had not those *Apertures* at the sides of the Head that the *Red Gurnard* had, and is common to most Fishes but the *Cetaceous* Kind ; but, like them, the *Yellow Gurnard* had two *Apertures*, or large *Foramina*'s placed on the hinder part of the Head, an inch beyond the Eyes, at which it spouts out the Water. By blowing into these *holes* I extended the Cavities where the *Gills* lay ; and observed that over these Cavities were placed a flat Bone, which by the Contraction of its Muscles might serve to force the Water out, and perhaps is assisted in this action by another loose Bone that lies over it, whose Edges are jagged or indented, as in the Figure : At which place in the *Red Gurnard* I observed a strong sharp Spine.

These *Foramina* in the Head of this Fish is a thing so very remarkable, that it may be looked upon as a *Characteristick* ; nor do I know at present with what other Fish to parallel it with : For the *Cetaceous* Kind, that have Spouts in their Heads, have not *Bronchia*, but *Lungs*. The better therefore to distinguish this Fish, I have added this particular to its name : And could wish, that, instead of those silly Names that are given to most Fishes, others were found out, that might be more Expressive ; and

and that their *Classes* were so order'd by such *specifick* differences, that one might better know where to range them, as in a good perfection is now done in the *Vegitable Kingdom*, that is more numerous.

But to conclude, I observed the Eyes in the *Yellow Gurnard* were placed more on the top of the Head, and the Skin here covered almost half of them, like an *Eyelid*; which I did not observe in the *Red Gurnard* whose Eyes were placed more at the sides of the Head. The Head likewise of the *Red Gurnard* was more protuberant, in the *Yellow*, flatter. The End of the *Rostrum*, the Teeth and Tongue in both were exactly alike; only in the Palat of the *Yellow Gurnard* I observed two *Cartaligonous Bones*, whose edges were bended downwards from the Palat, and did serve, as I supposed, for the hooking in and staying the Cartilage of the Tongue, when it makes a Compression for the forcing out the Water by the *Foramina of the Head*: Which Contrivance I did not find in the *Red Gurnard*, not having the like occasion for them.

This Fish being stale, I had not opportunity of dissecting it, and observing the *Viscera*: And shall only farther add, That the Gills had four Osseous *Radix* of each side. But of these more, if I happen to get another of this sort.

## VII. Problema Medicinæ Cultoribus solvendum proponit Guilielmus Cockburn, M. D. R. S. S.

**E**xperientia constat quam diversæ sint medicamentorum Operationes pro Temperamentorum, Ætatum, ac ejusdem ætatis diversi statûs varietate. Magis vero conspicua sunt Emeticorum & Purgantium opera: Adeo, ut quæ provectiones ætate quam lenissimè purgant, Infantes obruant: quæ justâ Cathartici Dose hodie propinamus, nimis